Unit 1: Embryonic Stem Cells, Natural and In Vitro Fertilization, Preimplantation Genetic Diagnosis

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Suggested time frame: One to six class periods

Course level: Beginning Biology, review for AP biology, community college beginning biology classes

Inquiry teaching: Read how to modify the curriculum for inquiry teaching

- View Unit 1 Lesson Plans
- Download Unit 1 Teacher Background Information [pdf]
- Download Unit 1 Teacher Glossary [pdf] (refers to terms in Teacher Background Information document)
- Download Unit 1 Student Glossary [pdf]
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- Go to Introductory Lesson download page

Brief Outline of Unit 1

View Detailed Unit 1 Lessons Outline

I. INVITATION

A. Writing activity with science and society discussion

1. View clips about My Sister's Keeper and Octomom

II. EXPLORATION

A. Natural fertilization and origins of stem cells; development of embryonic stem cell lines

1. Lecture with PowerPoint - stages of embryonic and fetal development
2. Animation of natural fertilization
3. Virtual lab - sea urchin fertilization and development
4. Human embryonic development - when/where different types of stem cells occur

B. In vitro fertilization (IVF) and what happens to un-implanted embryos

1. Video clips, animations, and discussion of the IVF procedure

C. Preimplantation genetic diagnosis (PGD) techniques, uses, and ethical considerations

1. Animation and discussion of ability of stem cells to differentiate, medical uses
2. Jigsaw study of scientific paper summaries with activity instructions

III. APPLICATION

1. Discussion of ethics of PGD following jigsaw activity
2. Ranking exercise of policy options

IV. ASSESSMENT

1. Short answer quiz format or can be used as thought/discussion questions

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